Students who follow the course of study given in this manual will have a most excellent introduction to chemistry, and teachers in arranging the work for their classes cannot go far astray if they are guided by the experience of one who has been preëminently successful in this line of work. E. H. Keiser.

SOCIETIES AND ACADEMIES.

BOSTON SOCIETY OF NATURAL HISTORY.

The Society met November 20; eighty-four persons present. Dr. J. Walter Fewkes, in his paper, 'Some newly discovered Cliff ruins in Arizona,' described, and illustrated with stereopticon views, the early home of the Moquis. The ruins studied were of three types: First, the cave dwellings situated on high bluffs and consisting of series of chambers hewn out with stone implements—these chambers have paved floors but the walls show no trace of masonry; secondly, stone houses built surrounding large crater-like depressions; and, thirdly, two large cliff ruins situated many miles north of Montezuma's Well.

The larger of these two ruins, affording room for 500 people, was four stories in height, with floors supported by beams of pine or cedar. Excavations revealed remnants of cotton cloth, blankets made of feathers, pottery, baskets and ropes made of fibers of century plant. Skeletons found beneath the floors showed the burial customs, and the abundance of stone implements with the absence of metal seemed to prove that the workers belonged to the stone age. The walls covered with symbols, practically identical with those now found in the Moqui houses, gave evidence of formal worship. The second ruin, smaller but better preserved than the first, showed the impressions of the hands of the workmen made at the time of plastering the walls of the rooms; a quantity of corn in the ear was found beneath the floor of this ruin. The cliff houses were probably abandoned before the discovery of the country by the Spaniard, and there is no evidence that the cliff dwellers were a distinct people.

The Society held a regular meeting December 4; eighty-one persons present.

Mr. L. S. Griswold discussed some geographical and geological features of the San Francisco Mountains and the Grand Canyon of the Colorado, describing in some detail the petrified forests. The paper was illustrated by a series of lantern slides.

Samuel Henshaw,
Secretary.

NEW YORK ACADEMY OF SCIENCES.

The regular business meeting was called to order December 2, 1895.

Prof. N. L. Britton presented the report of the Committee on the Audubon Monument and asked that the committee be discharged. He reported the satisfactory completion of the monument and the placing of the new die, which is guaranteed for at least two years. He announced that after all the expenses of the monument had been paid a balance of $1,797.25 remained on hand, which the committee therewith turned over to the treasurer of the Academy, together with the following resolution:

Resolved, That after all bills incurred by the committee shall have been paid, the Secretary and Treasurer shall pay over the balance to the Treasurer of the Academy, under the title, 'Audubon Publication Fund,' the interest of which shall be annually devoted to the publication of a memoir on some zoölogical or botanical topic, if a paper suitable for such memoir shall be presented. If no such paper shall be presented during any one year, the interest shall be allowed to accumulate until one is presented. Memoirs published by this fund shall be so designated."

A committee was appointed to audit the accounts of the report.

The Section in Astronomy and Physics then organized, with Prof. Woodward in the chair.

The first paper was by Prof. Harold Jacoby, on 'The Determination of Division Errors in Straight Scales.' The author only read the introduction to the paper and outlined the method. Thereupon, with the permission of the chairman, he read an historical description of the observatory at the Cape of Good Hope.

The second paper was by C. A. Post, on 'Photographs of the Lunar Eclipse of September 3, 1895.' The photographs exhibited were

very beautiful and brought out some interesting points with reference to time of exposure.

The third paper of the evening was by Prof. J. K. Rees, on 'Drawings made by Percival Lowell of the Markings on the Planet Mars.' These drawings corroborate to a very remarkable degree the observations of Schiaparelli.

and indicating the manner in which poisoning is likely to occur. The classification of the poisoning agents is indicated by the appended table. The paper will be printed in full in *The Alumni Journal* of the College of Pharmacy.

H. H. RUSBY,
Recording Secretary.

TABLE EXHIBITING THE POISONOUS PLANTS OF THE VICINITY OF NEW YORK CITY.

	ROOTS, ETC.	BARKS.	HERBAGE AND LEAVES.		FLOWERS.	FRUITS AND SEEDS.
Known powerful poisons liable to occasion accidents.	Phytolacca. Robinia. Cicuta. Sambucus. Solanum tub. (some tubers.) Veratrum. Convallaria.	Robinia. Sambucus.	Cicuta. Tanacetum. Datura. Veratrum. Aconitum. Nicotiana.		Convallaria.	The Actæas. Cicuta. Conium. Solanum tub. " dul. Datura. Taxus. Ricinus.
Known powerful poisons not liable to occasion accidents.	Aconitum. Podophyllum. Sanguinaria. Chelidonium. Iris. Leptandra. Arisæma.		Ranunculus. Clematis. Prunus. Lobelia inf. Absinthium. Convallaria. Hyoscyamus. Atropa. Solanum nig.	Sambucus. Conium. Cannabis. Juniperus, etc. Taxus. Chelidonium.		Aesculus Pavia. Chenopodium amb. Euphorbia. Hyoscyamus. Atropa.
Known to be poisonous in minor degree.	Cimicifuga. Actæa. Nasturtium Arm. Viola. Gillenia. Triosteum. Ipomœa pand. Apocynum. Euphorbia Ip. Trillium. Asclepias.		Nasturtium pal. Viola. Menyanthes. Kalmia. Pieris.		Sambucus. Kalmia. Pieris.	Sambucus. Sinapis. Juniperus.
Suspicious.	Ailanthus. Kalmia. Pieris. Ledum. Rhododendron. Lachnanthes. Tephrosia.	Ailanthus. Kalmia. Ledum. Pieris. Rhododendron. Prunus. Taxus.	Ailanthus. Lobelia card. " syph. Linaria. Robinia. Chenopodium. Phytolacca. Rhododendron.		Robinia.	Podophyllum. Ailanthus. Aesculus Hip. Prunus.

The drawings provoked an animated discussion in which Profs. Mayer, Rees, Post, Jacoby and Hallock took part. The prevailing opinion seemed to be that, although Mr. Lowell deserved much credit for great application and labor, we must await further corroboration before accepting his rather extreme theories.

WILLIAM HALLOCK,
Secretary of Section.

THE TORREY BOTANICAL CLUB.

AT the meeting on Wednesday evening, November 27, a lecture was delivered by the undersigned on *The Poisonous Plants of the Vicinity of New York City*, illustrated by colored lantern slides. The subject was treated with special reference to the presentation of evidence proving the poisonous nature of the plants named

GEOLOGICAL CONFERENCE OF HARVARD UNIVERSITY, DECEMBER 3, 1895.

Some Features of Joints. By J. B. WOODWORTH. For several years past the author has been gathering material illustrating the intimate structure of joint-planes. Observations based upon the closely-set joint-planes of the argillites of the Mystic river quarries, near Cambridge, show that there is a type of joint-plane exhibiting on its surface fine divergent lines comparable to the 'percussion rays' of flint chips, and indicating the direction of propagation of the splitting movement which resulted in the formation of the joint. These lines were in the case of the joints, called 'feather fracture.' These apparent rays are simply cross fractures between thin laminæ of rocks formed by minute planes of fracture, and some of the typical joint-planes

are made up of combinations of these small joint-planes and the cross fractures. (See Figs. 1 and 2.)

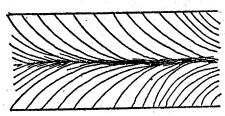

Fig. 1. Feather fracture. The lines diverge towards the margin of the divisional plane.

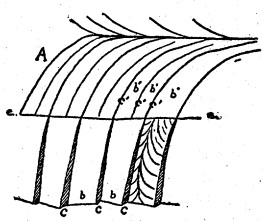

Fig. 2. Ideal arrangement of planes and fractured surfaces. A, principal joint-face; e, e, margin of A; b, b, imbricated planes of fringe; c, c, fractured surface between b-planes; b′ b′ and c′ c′, analogous to bb and cc on A, giving rise to feather fracture.' In the b-plane on the right feather fracture is also shown.

The margin of joint-planes of this class frequently dies out in a fringe in which these small joints are much enlarged, the interval between them is increased, and this is accomplished by their being turned at a considerable angle, from 10 to 25 degrees, to the principal joint-plane. These small joints also, where well developed, show feather fracture lines diverging towards the outer margin. Joint-planes are thus complex surfaces of fracture. Over the surface of the large joints the smaller joint-planes become so closely set and so nearly parallel to the principal surface of fracture that these smaller fracture surfaces gradually disappear before the unaided eye and become a mere granulation of the joint surface.

Where these joints are developed in a single stratum, they are commonly in the Mystic River argillite quarries in the form of elongated elliptical planes, the main fracture dying out above and below where the texture of the rock changes parallel with the stratification plane. The fringe of marginal joints then give rise to a set of joints in the underlying and overlying beds having a different direction from that of the main joint in the intermediate bed. Of less frequent occurrence are discoidal joints, evidently entire joint planes, of small size and circular in area because the stress which produced them was relieved by a small fracture in essentially homogeneous material. These vary

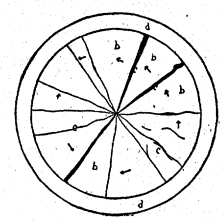

Fig. 3. Discoidal joint, with b-planes and c-fractures analogous to system of fractures in fringe of elliptical joints; d, marginal conchoidal fracture area. Arrows show dip of imbricated b-planes.

from half an inch to three inches in diameter. They consist of the small imbricated planes (b in the diagram) and the cross fractures (c in the figure). The author refrained at the present stage of the investigation from expressing an opinion as to the origin of these joints. The subject was illustrated by typical specimens. These joint structures also occur in the felsites of Salem Harbor, the granitic and dike rocks and in gneisses. A report on the investigation is in preparation.

T. A. JAGGAR, JR.,
Recording Secretary.

NEW BOOKS.

The Cambridge Natural History, Vol. V. Peripatus, ADAM SEDGWICK; *Myriapods*, F. G. SINCLAIR; *Insects*, DAVID SHARP. London and New York, Macmillan & Co. 1895. Pp. xi + 584. $4.00.

Text-book of the Embryology of Invertebrates. E. KORSCHELT and K. HEIDER. Translated from the German by Edward L. Mark and W. McM. Woodworth. London and New York, Macmillan & Co. 1895. Pp. xv + 484. $4.00.

Die Spiele der Thiere. KARL GROOS. Jena, Gustav Fischer. 1896. Pp. xvi + 359. M. 6.

Grundzüge der Marinen Tiergeographie. ARNOLD E. ORTMANN. Jena, Gustav Fischer. 1896. Pp. iv + 96. M. 2.50.